

What is claimed is:

- 1 1. An absorbent core for use in an absorbent article, the core comprising a  
2 plurality of substantially continuous and coextensive filaments, at least some of  
3 the filaments having disposed on a surface thereof a layer comprising a  
4 superabsorbent material formed in place on the surface from a liquid  
5 superabsorbent polymer.
- 1 2. The absorbent core of claim 1, wherein the filaments are selected from the  
2 group consisting of RAYON, cellulose acetate, polypropylene, polyethylene,  
3 polyethylene terephthalate, and sheath-core bi-component filaments, and  
4 combinations thereof.
- 1 3. The absorbent core of claim 1, wherein at least some of the filaments  
2 comprise cellulose acetate.
- 1 4. The absorbent core of claim 1, wherein the surface of at least some of the  
2 filaments is hydrophilized.
- 1 5. The absorbent core of claim 1, wherein substantially all of the filaments  
2 have disposed on said surface thereof said layer comprising the superabsorbent  
3 material.
- 1 6. The absorbent core of claim 1, wherein the core comprises two or more  
2 adjacent and coextensive strata, wherein one stratum comprises filaments  
3 having disposed on said surface thereof said layer comprising the  
4 superabsorbent material, and another stratum is substantially free of  
5 superabsorbent material.
- 1 7. The absorbent core of claim 6, wherein the another stratum comprises a  
2 surfactant disposed on the surface of at least some of the filaments.
- 1 8. The absorbent article of claim 1, wherein the liquid superabsorbent  
2 material is selected from the group consisting of one or more superabsorbent  
3 polymers at least partially dissolved in a liquid carrier, a solution in a liquid  
4 carrier of one or more superabsorbent precursors, and a combination of one or  
5 more superabsorbent polymers and superabsorbent precursors.
- 1 9. The absorbent core of claim 1, wherein the core has two opposing sides  
2 and the superabsorbent material is disposed in a pattern on one or both of the  
3 opposing sides.
- 1 10. The absorbent core of claim 1 further comprising pulp fibers interspersed

2 between at least some of the filaments.

1 11. The absorbent core of claim 1 further comprising superabsorbent polymer  
2 particles interspersed among at least some of the filaments.

1 12. A method of making an absorbent core for use in an absorbent article, the  
2 method comprising:

- 3 a) expanding a tow comprising a plurality of substantially continuous  
4 and coextensive filaments, each filament having a surface; and  
5 b) forming, from a liquid superabsorbent polymer, a layer comprising  
6 a superabsorbent material on the surface of at least some of the  
7 filaments.

1 13. The method of claim 12 wherein the forming step comprises:

- 2 applying to the expanded tow the liquid superabsorbent polymer to form a  
3 treated expanded tow comprising a liquid superabsorbent polymer coating; and  
4 curing the treated expanded tow to form the layer comprising the  
5 superabsorbent material.

1 14. The method of claim 13 wherein the applying step comprises:

- 2 immersing the expanded tow in a bath comprising the liquid  
3 superabsorbent polymer;  
4 removing the expanded tow from the bath; and  
5 removing a portion of the liquid superabsorbent polymer coating.

1 15. The method of claim 13 wherein the applying step comprises spraying the  
2 liquid superabsorbent polymer on at least one surface of the expanded tow.

1 16. The method of claim 13 wherein the curing step comprises exposing the  
2 treated expanded tow to heat.

1 17. The method of claim 13 wherein the curing step comprises exposing the  
2 treated expanded tow to radiation.

1 18. The method of claim 12, wherein the core has two opposing sides, and  
2 wherein the forming step comprises patternwise spraying the liquid  
3 superabsorbent polymer on one or both of the sides.

1 19. The method of claim 12, wherein the core has two opposing sides, and  
2 wherein the forming step comprises spraying the liquid superabsorbent polymer  
3 on one of the sides, the method further comprising applying a surfactant to at  
4 least some of the filaments on the other side.

- 1 20. The method of claim 12 further comprising partially separating the  
2 filaments to form the expanded tow.
- 1 21. The method of claim 20 wherein the step of partially separating comprises  
2 blowing the tow with jets of air.
- 1 22. The method of claim 12 further comprising at least partially flattening the  
2 tow.
- 1 23. The method of claim 12 further comprising interspersing pulp fibers  
2 between at least some of the filaments.
- 1 24. The method of claim 12 further comprising interspersing superabsorbent  
2 polymer particles between at least some of the filaments.
- 1 25. The method of claim 12 further comprising hydrophilizing at least some of  
2 the filaments.
- 1 26. The method of claim 12 wherein the forming step comprises forming a  
2 layer on substantially all of the filaments.
- 1 27. The method of claim 12 further comprising, after the forming step,  
2 removing one or both of water and residual volatile reactants from the formed  
3 layer.
- 1 28. The method of claim 12 further comprising, after the forming step,  
2 tenderizing the filaments having thereon said layer comprising the  
3 superabsorbent material.
- 1 29. A system for making an absorbent core for use in an absorbent article, the  
2 system comprising:  
3 a) means for applying a liquid superabsorbent polymer to a tow  
4 comprising a plurality of substantially continuous and coextensive  
5 filaments, thereby forming a treated expanded tow comprising a liquid  
6 superabsorbent polymer coating on the surface of at least some of the  
7 filaments; and  
8 b) means for forming, from the liquid superabsorbent polymer  
9 coating, a layer comprising a superabsorbent material on said surface of  
10 said at least some of the filaments.
- 1 30. The system of claim 29, wherein the means for applying comprises a bath.
- 1 31. The system of claim 29, wherein the means for applying comprises a spray  
2 nozzle.

1 32. The system of claim 29, wherein the core comprises two opposing sides,  
2 and wherein the means for applying comprises a spray nozzle configured to  
3 apply the liquid superabsorbent polymer on one or both of the sides in a  
4 pattern.

1 33. The system of claim 29, wherein the core comprises two opposing sides,  
2 the system further comprising means for applying a surfactant to the expanded  
3 tow.

1 34. The system of claim 29, wherein the means for forming comprises a  
2 heater.

1 35. The system of claim 29, wherein the means for forming comprises a  
2 radiation source.

1 36. The system of claim 29 further comprising means for removing a portion of  
2 the liquid superabsorbent polymer coating.

1 37. The system of claim 29 further comprising means for interspersing pulp  
2 fibers between at least some of the filaments.

1 38. The system of claim 29 further comprising means for interspersing  
2 superabsorbent polymer particles between at least some of the filaments.

1 39. The system of claim 29 further comprising means for flattening the tow.

1 40. The system of claim 29 further comprising means for partially separating  
2 filaments of the tow, thereby forming the expanded tow

1 41. The system of claim 40 wherein the means for partially separating  
2 comprises a source of air positioned to direct jets of air toward the tow.

1 42. The system of claim 29 further comprising means for removing one or both  
2 of water and residual volatile reactants from the formed layer.

1 43. The system of claim 29 further comprising means for tenderizing the  
2 filaments having thereon a layer comprising a superabsorbent material.